

In The United States Court of Appeals
For the Ninth Circuit

SAMUEL H. PALMER and C. A. WHITE, Partners Doing
Business as WESTERN FENCE & WIRE WORKS,
Appellants,

— vs. —

KARL H. KAYE, MATILDA KAYE and PACIFIC WIRE
WORKS Co., a Corporation, *Appellees.*

UPON APPEAL FROM THE UNITED STATES DISTRICT
COURT FOR THE WESTERN DISTRICT OF WASHINGTON
NORTHERN DIVISION

BRIEF OF APPELLANTS

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No. 12495

UPON APPEAL FROM THE UNITED STATES DISTRICT
 COURT FOR THE WESTERN DISTRICT OF WASHINGTON
 NORTHERN DIVISION

BRIEF OF APPELLANTS

OPINIONS BELOW

The opinion of the District Court at the conclusion of the evidence is found at R. 306-309. The opinion on the motion for new trial is found at R. 45-48.

JURISDICTION

Jurisdiction is based on the patent laws of the United States, and U.S.C., Title 28, Sec. 1338. The complaint alleges (par. I, R. 2) that the action is brought for injunction and damages for infringement of United States Letters Patent No. 2074665. Appeal to this court is taken pursuant to U.S.C., Title 28, Sec. 1291.

QUESTIONS PRESENTED

1. Is it patentable invention to discover that a particular form of wire is desirable in an industrial wire screen, the form itself resulting in substantial advantages in use, where persons skilled in the art had known that the wire could be made in such form but had considered it undesirable and had never produced such a screen? The District Court held it was not patentable invention.

2. Is the form of wire screen mentioned in Question 1 anticipated by other screens containing different forms of wire and, consequently, having different results in use, because the same process of manufacture, with different dies or different adjustments in the same die, would produce any of these screens? The District Court held it was anticipated.

3. Did the testimony fail to raise the question, not raised by the pleadings, that in the Palmer patent the disclosure was insufficient? The District Court held that evidence introduced without objection raised the question.

4. Do the claims of a patent sufficiently point out the invention of a desirable form or shape of the wire in an industrial wire screen, where they point out the form desired in the finished screen but do not contain any exact formula for achieving this form, the testimony showing that persons skilled in the art long have been able to give the wire in a screen any desired shape? The District Court held that the claims were not sufficient.

5. Have the appellees infringed appellants' patent

where appellees have produced and sold screens containing the same form of wire as that shown in the patent, although appellees also produce screens where the wire formation may differ in varying degrees from the form shown in the patent? The District Court held there was no infringement.

STATEMENT

By complaint filed September 28, 1948, appellants brought action for injunction against and damages for infringement of United States Letters Patent No. 2074665, issued March 23, 1937, for woven wire screens. The inventor and patentee is Samuel H. Palmer, one of appellants (R. 55). Appellants are partners d/b/a Western Fence & Wire Works, Portland, Oregon. The patent is an asset of the partnership (R. 56, 345). Appellee, Pacific Wire Works Co., is a Washington corporation, with its principal office and place of business in Seattle, Washington. Appellees Karl H. Kaye and Matilda Kaye reside in the Western District of Washington, Northern Division (R. 3, 163). In 1944 the business now being conducted by Pacific Wire Works Co., a corporation, was being carried on by Pacific Wire Works, Inc., a corporation. Pacific Wire Works, Inc., was disincorporated December 31, 1944, and the business was conducted during the years 1945, 1946 and 1947 by a partnership composed of the appellees Karl H. Kaye and Matilda Kaye under the firm name and style of Pacific Wire Works Co. On December 31, 1947, that partnership was dissolved and on January 1, 1948, Pacific Wire Works Co., a corporation, acquired the business (R. 163-164).

The complaint alleged the invention and proper application for, and issuance of, the patent, notice to the appellees of said letters patent and the fact that appellees continued infringement after notice. The amended answer admitted the issuance of the patent, the fact that the appellants and the appellee Pacific Wire Works Co. each were manufacturers of woven-wire screens, that appellees Karl H. Kaye and Matilda Kaye had manufactured wire screens, that appellee Karl H. Kaye as President of Pacific Wire Works Co. had notice of appellant's patent, and denied the other allegations of the complaint. For affirmative defense, the amended answer denied invention and alleged that the letters patent are invalid and void because of lack of invention and lack of novelty, considering the prior state of the art; that the alleged invention had been in public use and on sale in this country for more than two years before his application for a patent and had been abandoned to the public; that the patent was anticipated by the Potter patent, No. 1,139,469, and the Galloway patent, No. 1,907,056, and that one Lippincott designed a similar screen and made prints dated August 31, 1933, November 28, 1933, September 29, 1933 and October 2, 1933; and that John A. Roebling Sons Company manufactured the Lippincott screens on or before the dates designated; that the arch referred to in the Palmer patent was fully known many years before the alleged Palmer invention and had been known and used or discarded by many manufacturers prior to the invention; and that among those having manufactured and sold wire screens involving the alleged

invention, in addition to John A. Roebling Sons Company, were Manganese Steel Forge Co., Abbey-Sherer Company, and Ludlow Saylor Wire Co. (R. 1-13).

It was stipulated that the question of infringement would be tried out first, the question of damages to be deferred for later trial (R. 13-14).

The patent sued upon, being Patent No. 2074665 (Pl.'s Ex. 1, R. 332), hereinafter called the "Palmer patent," relates to the art of forming woven wire screens for industrial purposes (R. 57-59, 324-325). Industrial wire screens are those used for the screening of aggregate in the mining, sand and gravel and other businesses where it is necessary to size and classify mining ore, crushed rock, concrete aggregates and other materials (R. 57, 59-60). While these are called wire screens, the material used in them is actually steel rods from $5/32$ of an inch to one inch in diameter (R. 80). These screens are usually used in vibrating frames in decks, one screen on top of another, the larger opening screens on top. The material passes through or over these screens, the top screen taking off the sizes larger and the bottom screen letting through sizes smaller than those desired (R. 60).

The vibrating frame vibrates or shakes at a rate from 800 to 3200 vibrations per minute. The screen moves according to adjustment anywhere up to $3/8$ ths of an inch. The screen is set on about a 45° pitch and the movement of most of them is up and down or end-wise, the material traveling from one end of the screen to the other (R. 61).

The average load carried by these screens is about

6000 pounds per square foot of screen area per hour. This weight in crushed rock or other material is delivered on to the screen by means of a conveyor. A good screen should run about 150 to 200 yards per hour (R. 62).

The bending and shaping of wire and rods and the weaving of these into screens is an old process. Manufacturing techniques have long existed whereby wire and rods can be bent, or "crimped" as it is called in the trade (R. 59, 86), to any form or shape desired (R. 88, 138, 146).

There is more than one manufacturing process that shape these wires as desired (R. 157, 190). The method most commonly used, and used by both parties to this case, is to pre-form each wire separately (R. 76, 140) in a press where it is bent by pressure of parts of a die which is so arranged as to produce the desired shape (R. 76, 138, 160, 175, 179, 205). If the wire is curved as it comes off the coil, it is straightened before being put in the press for pre-forming (R. 160, 176). The die in the press can be arranged so as to give the wire any desired shape (R. 146, 160). In appellee's dies, for example, there are adjustable parts on the top of the die called "pads" and adjustable parts on the bottom of the die called "shims" (R. 206). Through adjustment of these parts the degree, length and depth of all curvatures in the wire can be varied or eliminated as desired (R. 109, 206, 227-229, 241-243, 286).

Another method of pre-forming the wire is to run the wire through a gear or wheel crimper (R. 76, 160, 239, 334, 341).

When the wires have been pre-formed to the desired pre-determined shape, they are placed in a loom and are woven together into the completed screen (R. 76, 140, 160, 178).

The original industrial wire screen, which has been in use more than a hundred years, was woven the same as a piece of cloth, over and under, and was known in the prior art as a basket-weave, or double-crimp," screen (R. 59-60, 88, 131, 192). An example of this screen is plaintiff's (Exh. 8, R. 59). The double-crimp screen is exactly the same on both sides, the wire curving in one direction with the same radius as it curves in the opposite direction. In other words, there are equal and alternating indentations in opposite directions on the wire so that when woven the wires go over and under an equal distance like a piece of cloth (R. 59-60, 103-104).

The double-crimp type screen was objectionable for industrial screens (R. 192) because no matter which side was used it had sharp crimps or bends on the wearing side of the screen and under the abrasion of the material passing over it the crimps wore off and the screen went to pieces (R. 62, 121-122). Prior to about 1931, very few screens were used for classifying heavy abrasive materials with an opening of more than three-quarters of an inch because they didn't stand up. Ninety per cent of the use in classifying materials above three-quarters of an inch prior to that time was flat boiler-plate with holes punched in it (R. 59). This was likewise unsatisfactory because while it wore well, it was too smooth to force the material to pass through the openings

and too much of the material which should have dropped through the openings passed over the plate (R. 65).

Inasmuch as the wire can be bent (or "crimped") to any desired formation it is in the discovery of desirable wire formation that advances have been made in the art of industrial wire screens. The attempts at advancement have been to discover shapes and formation of the wire which would increase wearing ability and efficiency (Pl.'s Exhs. 1, 10, 11 12, 13, 14; R. 324-343); (Pl.'s Exh. 18, p. 32).

On May 11, 1915, Patent No. 1, 139, 469 was issued to W. S. Potter for a screen consisting of rods having straight portions with intervening sharp cups or "crimps" and woven with the concave portions of the crimps all facing the same direction, the crimps of one set of bars embracing the straight portions of the other set of bars, so that one surface of the screen contains the straight portions of the rods of both sets of wires all in the same plane (Pl.'s Ex. 10; R. 327-329). This gave a screen with a flat surface on one side which was used as the wearing surface in screening abrasive materials and a very rough surface on the opposite side (Pl.'s Exhs. 5 and 7 are examples of Potter type screens (R. 62. 63). In the Potter screen the rod extends in a straight plane across two openings of the screen and then drops abruptly and sharply into a cup or notch the full depth of the diameter of the rod being used (R. 327-329).

The "crimp" or "hump" (R. 328) in the Potter screen is sufficiently sharp that the concave portion or "cup" of the crimp maintains contact with dia-

metrically opposed sides of the intersecting wire, which rests in the crimp, up to the center plane of the wire (R. 89-90; Pl.'s Ex. 10, Figures 1 and 2, R. 327). In other words, the inside or concave surface of the crimp in the Potter patent has the same radius as the wire, which is half the diameter of the wire, while the outside or convex surface of the crimp in the Potter patent has a radius of one and one-half times the diameter of the wire (R. 104; Pl.'s Ex. 10, Figures 1 and 2, R. 327). This results in almost a right angle bend in the wire at each point where the straight wire ends and the cup or hump begins (R. 90; Pl.'s Ex. 10, Figures 1 and 2, R. 327).

The advantage of the Potter screen over previous screens was that, being flat on one side, it produced a greater wearing surface (R. 64, 90). The disadvantages were that the sharp bend in the wire tended to weaken or fracture the wire, particularly if spring steel wire was used (R. 65, 66, 73, 146); the screen had a tendency to distort in use by the shifting of the cross wire along the straight portion of the wire where there was no resistance to hold the cross wire in place (R. 67, 73-74, 121); and there was not sufficient roughness on the flat or wearing surface to give efficiency in classifying materials (R. 65).

Helman attempted to meet the distortion difficulty and the weakness of the wire, in his patent No. 1,678,941, issued July 31, 1928. His method was to make the old double crimp but to flatten out the crests of each curve in the wire, assertedly resulting in a better locking position and an increase in the

hardness and rigidity of the wires (Pl.'s Ex. 14, R. 341-343).

The next patent in the art was No. 1,829,498 to Boehm on October 27, 1931 (Pl.'s Ex. 12, R. 333-337). Boehm's purpose likewise was to make a screen which would maintain its shape and resist the tendency of many types of screens to become "sleazy" and to give a screen having greater life (R. 335). The Boehm screen was of the double-crimp variety, in that each side of the screen was the same as the other, but Boehm attempted to achieve a tighter screen by shortening the wire through the use of an extra bend in the wire in between the bottom of one crimp and the top of the next (R. 333).

On May 2, 1933, Patent No. 1,907,056 was issued to Galloway (Pl.'s Ex. 11, R. 330-332). Galloway's purpose likewise was to answer the problem of distortion. His formation contained a sharp crimp like Potter's (R. 158), in which every other transverse wire rested. This crimp, like Potter's, had an inside radius of half the diameter of the wire (R. 104). Galloway's screen had a smoother side and a rougher side, also like Potter's screen. However, in order to prevent shifting of the alternate transverse wires which in Potter's screen rested under a straight section of wire, Galloway made in the straight section of wire a shallow depression or "crimp," in which these alternate transverse wires could rest. This resulted in giving to that portion of the wire which was straight in Potter's screen a formation of three humps between every set of cups, the humps being on the smoother side of the screen, the one used as the wear-

ing surface. On the opposite side of the wire there resulted three depressions between each main set of humps (R. 74-75, 104-105, 158, 163, 194; Pl.'s Ex. 11, R. 330-332).

While the Galloway formation gave a tight screen which did not distort, its disadvantages were that in order to bend the wire into three crimps for every two meshes which his patent called for, it was necessary to use soft wire (R. 74) and the numerous protrusions wore off rapidly and shortened the life of the screen (R. 75, 110). A screen could not be made under the Galloway patent using high carbon wire because the abrupt crimps would have a tendency to fracture the wire (R. 76).

On August 1, 1933, Patent No. 1,920,495 was issued to Brown (Pl.'s Ex. 13, R. 338-340), dealing with a method of making woven-wire screens whereby soft wire is crimped and then hardened by heat treatment after crimping. The Brown screen was the same on both sides, the crimps being made equally in both directions.

The above-mentioned patents were all cited by the Patent Office and the Palmer claims allowed in view of these patents (Pl.'s Ex. 18, pp. 14, 23).

Up to 1932, ninety per cent of the wire used for industrial screens was a soft wire known as "bright basic, low-carbon wire" (R. 65). It was a problem in the industry how to make a screen so as to use the new spring steel high-carbon high-tensile strength wire that had been developed (R. 65, 84-85). Spring steel high carbon wire is the most desirable for use in

industrial screens because it lasts longer. It resists abrasion better (R. 66). When spring steel is used, if the crimps are too abrupt, too sharp, the wire will have a tendency to fracture in the fabricating (R. 73). A sharp, almost right-angle bend, such as is found in the Potter screen, means that the opposite side of the wire from the sharp bend must stretch and high-carbon wire won't stretch (R. 90). In order to cold-press crimps into a three-eighths inch or larger high-carbon and high-manganese content spring steel wire with a straight wire between the crimps such as is shown in the Potter patent, the manganese content cannot be too high and the steel must have proper heat treatment (R. 146). When the wire is heat-treated, it is not a spring-steel wire (R. 84). Also, heat-treatment is expensive (R. 77).

About 1929 the federal specification for gravel for highways became very rigid. They required a particular size with only a five per cent tolerance. These specifications mean that the mesh had to be almost perfect and had to be made rigid enough to prevent distortion in use (R. 66-67).

Samuel H. Palmer commenced his experience in the metal-working industry in 1907 with the Seattle Wire & Iron Works. After the end of the first World War he became foreman of the Wire Department of the Northwest Fence & Wire Works at Portland, Oregon, and worked there until 1928, at which time he was Superintendent and Assistant Manager. In 1928 the corporation was purchased by the United States Steel Corporation and merged with the Cyclone Fence Company and became a subsidiary of the American

Steel & Wire Company. Palmer remained for two years thereafter in charge of the Northwest territory for Cyclone Fence Corporation. Northwest Fence & Wire Works, between 1918 and 1928, and Cyclone Fence Company from 1928 to 1930, were the leading wire fabricators in the Pacific Northwest of industrial wire screens. Palmer was in charge of the manufacturing and was fully responsible for the design of their products. He also was responsible for the design of the tools by which those products were made (R. 56-57).

In 1931 the American Steel & Wire Company plant closed down because of the depression and Palmer set up business as the Western Fence & Wire Works in Portland and commenced development work on an industrial wire screen (R. 59) which would meet the objections to the screens then in use; namely, distortion, poor wearing quality or poor efficiency and inability to use spring steel high carbon wire, cold pressed (R. 59, 64-67).

The Palmer patent application was filed August 2, 1934, and granted March 23, 1937 (Pl.'s Ex. 1, R. 323-326). The object stated in the application was to secure a screen of superior wearing qualities and strength by using high-carbon material wherein shifting of the wires relative to each other is minimized and at the same time to distribute the wearing surface over the greater part of the screen so as to increase the length of service (R. 324).

The formation shown by Palmer was a screen with a relatively smooth side and a relatively rough side accomplished by two sets of crossed spring tension

high carbon wires, each wire being formed with cold-pressed gradual longitudinal arches bowing on the smooth side of the screen, the terminals of adjacent arches defining relatively shallow crimps, the crimps being coincident with the intersections of the adjacent arches, the sets of wires being woven so that the mid-points of the arches of one set overlies the intersections of the arches of the other set (Pl.'s Ex. 1, Claim 2, R. 325).

The basic feature of the Palmer formation is the series of interconnecting, gradual, uniformly curving arches, each arch extending over two meshes of the screen, the intersection of one arch with the next adjacent arch on the wire forming a shallow depression or crimp (R. 67-70, 95 Pl.'s Ex. 1, R. 324-326; Pl.'s Ex. 18, pp. 32-33). These arches eliminate the sharp bends in the wire found in Potter, Galloway and other screens, and make it possible to cold press spring steel high carbon wire without weakening the wire (R. 73, 76, 85). The arches are woven all on the same side of the screen, giving a wearing surface that, while not flat like Potter, is relatively smooth (R. 70). The other side of the screen contains the humps caused by the intersections of the arches and thus is quite rough (R. 70).

The Palmer screen wears much better than the Galloway and double crimp screens (R. 109-110, 122). The arches make the wearing surface slightly rougher than the straight wire of Potter and this results in more efficiency in classification (R. 110). The gradual arch prevents shifting of the transverse wire resting against the concave side of the arch because the transverse wire

rests in the deepest part of the arch and meets resistance to movement either way and this fact, together with the characteristics of the spring steel wire, gives a screen that does not distort in use (R. 68, 95, 106, 121). Plaintiff's Ex. 3 is an industrial wire screen of one and one-half inch opening manufactured by Palmer with the Palmer formation (R. 71). Pl.'s Ex. 6 is a screen of a longer mesh manufactured under the Palmer patent, which has been worn out in actual use (R. 71).

The resistance to distortion accomplished by the Palmer formation as compared to the Potter formation is demonstrated by Plaintiff's Exhibits 4 and 5. Plaintiff's Exhibit 4 is a small sample of screen made with the Palmer formation and Plaintiff's Ex. 5 is a sample of the same size screen made with the same materials in the Potter formation. Applying pressure to Plaintiff's Ex. 4, the Palmer type, by means of pliers will not make the wires shift. However, applying much less pressure with the pliers to Plaintiff's Ex. 5, the Potter type, will make the wires shift (R. 64, 71, 74-34).

The arch in the Palmer formation extends across two meshes of the screen. It must have a height when woven equal to the diameter of the wire so that the central portion or deepest part of the concave side of each arch will pass over an intersecting wire and the intersection of the terminals of adjacent arches will pass under the adjacent intersecting wires, and the entire screen will maintain a thickness of twice the diameter of the wire, keeping all of the arches on the same plane (R. 70-71, 123-125). Because of this

the exact length and radius of the arch and of the crimp formed by the intersections of the arches varies with the size of the wire and the size of the mesh (R. 103, 283, 288). The radius of the crimp varies between two-thirds and three-fourths of the diameter of the wire (R. 70, 104).

Furthermore, in pre-forming the wire, the characteristics of the particular wire being used must be considered (R. 70, 218, 284). The flexibility, springiness, of wire varies from lot to lot and even along a wire in a single spool thereof (R. 188). Thus, to achieve a particular tightness, or pressure, in a screen between crossed wires at their crossing, the wire must be sprung, or deflected, during the weaving, more or less depending upon the physical character of the particular wire. This means that while the final form in the screen is predetermined and constant for a given mesh and wire size, the pre-formed shape of a wire before weaving varies (R. 144, 187, 242-243, 284, 287-288). For this reason it is not possible to give a precise mathematical formula for pre-forming the wire for the Palmer screen (R. 284). However, in all finished screens of the same mesh and wire size, the arches will be the same in radius (R. 287-288). The factors controlling this radius in the finished screen are that there must be sufficient curve in the arch to give a height when woven equal to the diameter of the wire, so as to permit the arch to maintain a uniformly curving character to its intersection with the next arch, thus eliminating the sharp bend found in Potter and at the same time offering resistance to slipping of the transverse wire which rests against the concave por-

tion of the arch, but there must be no more curve than this because each arch must bear on the transverse wire passing beneath it and must be kept as flat as possible to add to its wearing qualities (R. 70, 94-95, 125, 274-275, 278-279, 281-283).

Palmer in 1932 commenced and with appellant White has continued to manufacture and sell the screen patented by him. Appellants have built up a substantial and lucrative business in these screens, their main outlet being the northwest territory (R. 79-80). Appellees are competitors of appellants in this territory (R. 112).

Joseph E. Lippincott of the John A. Roebling Company, Trenton, N. J., drew the originals of Def.'s Ex. A-1 in 1925, Def.'s Ex. A-2 in 1932, Def.'s Ex. A-3 in 1935 and Def.'s Ex. A-4 in 1948 (R. 140). Screens were manufactured by Roeblings in accordance with these drawings as soon as they were designed (R. 140). These screens are identical with the Potter screen, except that Roebling has now improved on the Potter design by placing a "nick" at the middle of the straight portion of the wire where it intersects a cross-wire to help prevent the wires from shifting out of place (R. 147). Lippincott testified that an arch similar to that in the Palmer patent was known to manufacturers of woven wire screens prior to August 2, 1932 (R. 142). He stated that this testimony was based on information that they had on this "natural" arch from their observation of other manufacturers' screens and from their own knowledge and experience in design of screens (R. 148). The Roeb-

ling Company is a competitor of appellants (R. 118, 138).

Ludlow-Saylor Wire Co., St. Louis, Mo., on March 28, 1931, manufactured and sold a screen of the same type shown in the Potter patent (R. 150, 153; Pl.'s Ex. 9). Duncan C. Dobson of that company testified that an arch similar to the arch shown in the Palmer patent was known to manufacturers of woven wire screens prior to August 2, 1932 (R. 152). He stated that he had not seen such an arch but that Manganese Steel Forge Co. had known of the arch in 1925 and he had learned of it through advertisements and customers (R. 154) and that the natural curvature of the wire coming from the coil was very evident (R. 115).

Manganese Steel Forge Co., Philadelphia, Pa., commencing in 1921, has manufactured hot crimped screens under the Potter and Galloway patents (R. 157-158). They do not use spring steel wire (R. 156-157).

Abbey-Scherer Co., El Monte, Calif., have since 1933 manufactured screens identical with the Potter patent except that they place an indentation or "nitch" half way between the two "humps" so that the fill wire has a definite resting place and holds the size of the opening exact (R. 159-160, 162).

Def.'s Ex. A-36, offered for the limited purpose of construing the claims of the Palmer patent (R. 249-252) is a catalogue of W. S. Tyler Company, Cleveland, Ohio, copyrighted 1927 (R. 249). It shows a number of screens of a rectangular mesh type (R.

252-255). All of these screens are exactly the same on both sides, unless one side was later rolled (R. 264). Appellant Kaye testified that one side could be rolled and not the other (R. 264).

Plaintiff's Ex. 2 is an industrial wire screen of one and one-half inch opening manufactured and sold by appellee Pacific Wire Works Co. on Sept. 21, 1949 (R. 53-54). It was invoiced as 1½" opening 3/8" wire Pacific 4S wire screen (Pl.'s Ex. 19). It is a duplicate of one manufactured and sold by appellees Karl H. Kaye and Matilda Kaye, d.b.a. Pacific Wire Works Co., in December, 1947 (R. 53-55). Pl.'s Ex. 2 has a smooth side and a rough side, the smooth side normally being used as the wearing surface in actual use (R. 122). Plaintiff's Ex. 2 comprises two sets of crossed spring steel high carbon hard drawn wires, one set being arranged at right angles to the other set (R. 84). In Pl.'s Ex. 2 each wire is formed with gradual longitudinal arches, said arches bowing on the smooth side of the screen (R. 83, 122-123). These arches are cold pressed (R. 77, 176). They are of uniform curvature (R. 128).

The curvature of the arches of Pl.'s Ex. 2 is traced in red pencil on a card introduced as Pl.'s Ex. 21. The curvature of the arches of Pl.'s Ex. 3, manufactured by Palmer in accordance with his patent in the same size as Pl.'s Ex. 2, is traced in black pencil on Pl.'s Ex. 21. The straight wire between the cups or "crimps" of Pl.'s Ex. 7, a screen built in accordance with the Potter patent, is traced on Pl.'s Ex. 21 in green pencil (R. 127-128).

Def.'s Exs. A-9 to A-19, inclusive, are ends of

wires that had been pressed by appellees for use in screens. Def.'s Exs. A-20 to A-27, inclusive, are samples of screens manufactured by appellees. These screens, and also Pl.'s Ex. 2, are sold by appellees under the name of "Pacific 4S flat top" screen (R. 83, 237-238, Pl.'s Ex. 16).

Prior to 1944 appellees predecessor, Pacific Wire Works, Inc., did not manufacture these "Pacific 4S flat top" screens but only small screens of the double crimp variety (R. 237). They bought the larger screens from appellants made under the Palmer patent and sold them to their customers, building up a substantial business in them (R. 237-238, 81- 82). In 1944 they ceased buying screens from appellants and commenced manufacturing the "Pacific 4S flat top" screens, selling them to their customers with no different description on their invoices from the description used for Palmer's screens (R. 81-82, 237-238). A large number of the "Pacific 4S flat top" screens manufactured and sold by appellees and having an arch formation likke Pl.'s Ex 2 have been seen at users' places of business in the Pacific Northwest (R. 83, 120).

On April 20, 1948, appellant Palmer orally notified appellee Kaye, president of appellee Pacific Wire Works Co., of Palmer's patent and of the fact that appellees were infringing it (R. 83).

At the conclusion of the testimony the court delivered an oral opinion in favor of appellees (R. 306-309). Appellants thereupon submitted their proposed findings of fact and conclusions of law, which

were rejected (R. 14-31). The court on Nov. 14, 1949, signed findings of fact and conclusions of law presented by appellees (R. 31-39) and entered its decree holding that the Palmer patent is invalid in respect to each and every one of its five claims; that if valid, the screens manufactured by appellees have not and do not infringe on said patent and that appellants are entitled to no relief under their complaint (R. 39-40).

On Nov. 23, 1949, appellants filed motion for new trial on the grounds (1) that in holding that the written description of the invention is not sufficient to point out the part or improvement or combination which Palmer claims as his invention and that from the patent and the evidence it would be impossible for one acquainted with the art to duplicate or avoid duplicating the Palmer screen, the court decided the case on an issue not raised by the pleadings; (2) that the court failed to give effect to the decisions of the Supreme Court requiring appellees to establish the invalidity of the patent beyond a reasonable doubt; and (3) to (12) inclusive, certain specific errors in the opinion, findings and decree (R. 41-43). This motion was denied on Dec. 5, 1949 (R. 43-44).

Notice of appeal was filed Dec. 20, 1949 (R. 48). By Order dated Dec. 23, 1949, the District Court extended to March 13, 1950 the time within which the record could be filed in this court (R. 49). Record was filed in this court March 10, 1950 (R. 313). By order of this court on motion of appellants, all exhibits are to be considered in original form except Pl's. Exs. 1, 10, 11, 12, 13, 14, 15 and 20 (R. 319-320).

SPECIFICATIONS OF ERROR

Appellants rely upon the following errors of the court below:

1) The court erred in entering its decree (R. 39) holding all claims of Patent No. 2074665 invalid, in that such decree is not supported by the evidence nor by the findings of fact and conclusions of law.

2) The court erred in entering its decree (R. 39) holding that the screens manufactured by the appellee have not infringed patent No. 2074665, in that such decree is not supported by the evidence nor by the findings of fact and conclusions of law.

3) The court erred in failing on all of the evidence and applicable law, to grant the relief prayed for by the complaint herein (R. 6-7).

4) The court erred in making its first conclusion of law (R. 38) to the effect that the claims of appellants' patent are invalid because of lack of invention, novelty, utility, definiteness and any advance on the prior art, for the reason that said conclusion is contrary to law and not supported by the evidence or findings of fact.

5) The court erred in making its second conclusion of law (R. 38) to the effect that the screens made by appellees do not infringe any of the claims of appellants' patent, for the reason that said conclusion is contrary to law and not supported by the evidence or findings of fact.

6) The court erred in making its Finding of Fact No. XIII in that the court ignores the differences be-

tween the several patented screens, including appellants' patented screen.

7) The court erred in making its Finding of Fact No. XIV in that

(a) The finding that it would be impossible for anyone, even though acquainted with the art, to duplicate with certainty the Palmer screen or avoid such duplication is not supported by any evidence, is contrary to the evidence, and is not within the issues raised by the pleadings.

(b) The finding that the screens are manufactured by a punch is contrary to the evidence, the evidence establishing that the wires for the screens are formed by dies.

(c) The finding that the wire will naturally form an arch is contrary to the evidence, the evidence establishing that the wire will take whatever shape the die is designed to give it.

(d) The finding that manufacturers of screens generally regard the arch as a disadvantage and endeavor in every way to eliminate it and that this arch was known long before appellants' patent and that the manufacturers deliberately reduced or removed it, is ambiguous and uncertain as to whether it is intended as a finding that a screen of the form shown by Palmer was ever previously made, used or published, and if it is so intended, then said finding is contrary to the evidence.

8) The court erred in making its Finding of Fact No. XV in that:

(a) The finding that the claims of appellants' pat-

ent have no novelty and represent no invention or improvement over prior art is contrary to law and to the clear weight of the evidence.

(b) The finding that the claims of appellants' patent do not represent any change or improvement which would not readily occur to a skilled mechanic familiar with screen making is contrary to the evidence.

(c) The finding that the ideas in said patent claimed to be new were either known to the prior art or anticipated by the Potter and Galloway patents and the screens manufactured and sold thereunder is contrary to law, not supported by evidence and contrary to the evidence.

(d) The finding that there is no utility in the claimed invention is contrary to law, not supported by evidence and contrary to the evidence.

(e) The finding that the claims do not contain a written description of the invention and discovery sufficient to point out particularly, and do not distinctly claim the part or improvement or combination which Palmer claims as his invention so as to inform the public of the limits of the monopoly asserted, and so that the public may know which features may be safely used or manufactured without a license and those which may not, is not supported by evidence, is contrary to the evidence, and is not within the issues raised by the pleadings.

9) The court erred in making its Finding of Fact No. XVI in that the finding that screens manufactured by appellees do not infringe upon the appellants' patent is contrary to the evidence.

10) The court erred in failing to adopt appellants' proposed Findings of Fact and Conclusions of Law.

11) The court erred in denying appellants' motion for a new trial.

ARGUMENT

I.

Basic Issue Is Whether Discovery of Desirability of New Form of Wire in an Industrial Wire Screen Is Invention.

The basic issue in this case is whether there is patentable invention in the discovery that a particular formation of wire is desirable in an industrial wire screen where the formation itself produces beneficial results in use, and where a screen of this formation had never before been used, those skilled in the art knowing that such form of wire could be produced but not making such a screen because they thought it not desirable.

That the decision for appellees below resulted fundamentally from the view of the District Court that there was no invention under these circumstances appears clearly from examination of its oral opinions. The court, in effect, held that there was no invention unless there was something new in the method of manufacture. In the court's final opinion, denying motion for new trial, it stated (R. 47):

“* * * after all is said and done about this case and all of the evidence relating to it, the basic primary principle of gravel screen wire weaving involved in plaintiff's patent has been known to

cloth weavers for generations. It is basically and primarily nothing more than the ordinary basket weave style of weaving ordinarily employed in the cloth weaving industry.

“The only way you can get in plaintiffs’ gravel screen wire net weaving process any variations of that basic primary principle of basket weaving of cloth is to introduce some discussion and consideration about the different kinds or sizes of the wires to be used in making the wire net gravel screen, instead of, if you were weaving cloth, discussing and considering the kinds or sizes of warp and woof that might be used in making the ordinary basket weave style of cloth weaving. But in such considerations, as applied to plaintiffs’ patent process, is to be disclosed no valid patent.”

If the District Court is correct in this statement, it means that most, if not all, of the patents granted in the art of industrial wire screens are invalid, because they are all woven like cloth is woven, and the new thing about most of them is merely the form (*i. e.*, the bends and curvatures) of the wire in the finished screen. It is this form itself that gives these various screens different characteristics in use (R. 323-343).

The District Court’s opinion delivered at the close of the testimony likewise dwells on the manufacture of the crimp and finds no invention on the ground that plaintiff’s arch is a by-product of the manufacture of the crimp (R. 306-307). Again it is apparent that the court is looking for some difference, something new, in the method of manufacture. The fact that Palmer was the first to discover the desirability of and to use this particular formation of wire in an industrial wire

screen was not sufficient in the eyes of the District Court.

That Palmer was the first to discover and use a screen of the form shown by him is uncontradicted by any credible evidence in this record, as we will later develop. That this form of screen produced important desirable results in use—the form being the essence of the matter—is also clearly established and will be developed. Others skilled in the art had failed to perceive the advantage of this form even though knowing that the wire could be given such form. Under these circumstances, we submit that even though no new manufacturing methods are used, there was patentable invention when Palmer discovered, reduced to practice and published for the first time the fact that this particular form of wire could be used in an industrial wire screen with marked beneficial effect. *Hobbs v. Beach*, 180 U.S. 383, 45 L. Ed. 586, 21 Sup. Ct. Rep. 409; *O. H. Jewell Filter Co. v. Jackson* (C.C. A. 8) 140 Fed. 340, 346; *Greenwald Bros. v. Enochs* (C.C.A. 3) 183 Fed. 583; *Barry v. Harpoon Castor Mfg. Co.* (C.C.A. 2) 209 Fed. 207; *Kelly v. Coe* (C.A. D.C.) 99 F.2d 435, 441; *In re Holt* (C.C.P.A.) 162 F.2d 472, 475.

II.

The Palmer Discovery Constitutes Invention in View of the Prior Art.

The court below held that the ideas of the Palmer screen were “either known to prior art or anticipated by the Potter and Galloway patents” (R. 37). We submit that the court erred in so holding and that

nothing in the prior art cited by the answer and introduced in this case showed a formation of wire such as that shown by Palmer.

The court also held that the claims of Palmer did not represent "any change or improvement which would not readily occur to a skilled mechanic familiar with screen making" (R. 37). We submit that the error of the court in so holding is demonstrated by the testimony of the manufacturers who were appellee's own witnesses who stated that they knew that the wire could be formed with an arch but thought such an arch to be undesirable (R. 145, 160).

Certainly it cannot be said that Potter or Galloway, the patents relied upon by appellees, showed the same formation of wire shown by Palmer. The essence of the Palmer screen is in each wire having arches, each arch extending over two meshes of the screen, each wire containing a series of these arches all in the same plane and bowed in the same direction, the ends of the arches abutting each other to form shallow crimps. Neither Potter nor Galloway have a uniformly curving arch over two meshes of the screen. This difference in shape produces the actual practical differences in performance of these screens in use.

Potter Screen

The wire in the Potter screen is in perfectly straight sections spaced apart by cup-like formations. Potter describes the upper surface of his screen as practically flat (R. 329, lines 1-5). The testimony is to the same effect (Palmer, R. 64, 72; Essley, R. 123; Lippincott, R. 144-145; Dobson, R. 149; Jones, R. 158; Guess, R.

163; Kaye, R. 216). Potter describes the cups in his wire as "formed by crimping the bars for their whole diameter out of line at the places of crossings of the straight portions of the intersecting bars" (R. 328, lines 106-110). This results in a straight wire between cups.

The straightness of this wire in Potter's screen permitted shifting of the intersecting wires and caused the screen to distort. This is indisputable on this record. Not only did Palmer and Essley directly so testify based on observations of Potter type screens in use (R. 73-74, 121), but all of the patents issued during the period between the Potter and the Palmer patent speak of this problem of distortion as the number one problem to be solved. See, for example, the statements in the Galloway patent (R. 331, lines 25-31).

Helman in 1928 (Pl's. Ex. 14, R. 341-343), Boehm in 1931 (Pl's. Ex. 12, R. 333-337), Galloway in 1933 (Pl's. Ex. 11, R. 330-332) and Brown in 1933 (Pl's. Ex. 13, R. 338-340) speak of the problem of distortion and all had as their major objective a screen that would hold its shape under the terrific punishment it received. Specifications for gravel were becoming rigid and screens that let through wrong sizes could not be successful (R. 66-67).

In fact it appears that the Potter screen did not enjoy any widespread use until it was modified to meet this problem of distortion. John A. Roebling Co. and Abbey-Scherer Co. each devised a nick in the center of the straight portion of the Potter wire to keep the intersecting wire in place (R. 147, 159, 211, 231, 236, 239). With this improvement Abbey-Scherer Co. com-

menced manufacturing the Potter screen in 1933, and Frank M. Guess of that company knew of no others manufacturing the screen at that time (R. 159). While Roebblings made some screens of the Potter type as early as 1925 (R. 140) they did not put the Potter screen actively on the market until 1947 (R. 305). Only the Manganese Steel Forge Co. was using the Potter screen to any extent prior to 1932 and they did so by hot crimping the wires (R. 157).

Appellant Kaye testified that his screens did not distort (R. 203). His screens, however, are the ones in dispute, it being appellant's contention that they are made with the Palmer form. Kaye admitted that his screens were not the same as Potter's (R. 236, 244, 216-217).

Kaye himself testified that some manufacturers have placed a nick in the Potter screen to prevent shifting (R. 236-237).

The gradual arch of Palmer prevented the shifting and distortion that the straight wire of Potter permitted (R. 95, 106, 121), as demonstrated at the trial with Plaintiff's Exhibits 4 and 5 (R. 64, 71, 73-74). Thus the difference in the form of the wire in the two screens was itself the factor that brought the desirable result.

Galloway Screen

The Galloway screen has the same sharp, deep crimp as the Potter screen, which would give Galloway the same formation as Potter, *viz.*: a straight wire across two screen openings, except that an additional crimp is put in that portion of the wire which is straight in

the Potter screen. Not only is the Galloway formation different from Palmer's, but the principles adopted are different. Galloway relies on the extra sharp crimp to keep the screen from shifting between the main crimps whereas Palmer relies on the long sloping arch and the ability in his formation to use cold pressed spring-steel wire. The extra humps of Galloway wear rapidly and their formation necessitates the use of soft wire. As to the difference between the Galloway and the Palmer screen, see the testimony of Palmer (R. 74-76); Jones (R. 158); Guess (R. 161); Kaye (R. 191-196). Again, as in the comparison between Potter and Palmer, the difference in the shape of the wire itself produces the desirable result or improvement, which as between Galloway and Palmer was better wearing quality, ease of formation and greater strength for Palmer.

We submit, then, that the Palmer discovery was not anticipated by Potter or Galloway, since Palmer shows a different formation of wire which in and of itself produces different results.

No Previous Screen Like Palmer's

Nor is there in the record any credible evidence that a screen with a formation like Palmer's was ever conceived or built. Lippincott's screens (Def's. Ex. A-1 to A-4, incl.) were all Potter type formations showing no arch (R. 147). One Roebling screen (Def's. Ex. A-5) does have an arch but there is no testimony to show it was produced prior to August, 1932. In fact, in referring to Exhibit A-5, Lippincott uses the present tense, showing the screen is of

recent production (R. 144). Essley confirms this by his testimony that no screen such as Exhibit A-5 was sold by Roebling or appeared in a Roebling catalogue up to 1945 (R. 304). Lippincott testified that the arch was "known to the manufacturers of woven wire screen prior to the dates of my prints" (R.141). He further testified that the information on which he based this statement was "that the information that we had on this 'natural' arch was from our observation of some other manufacturer's screens and from our knowledge and experience in the design of this and other types of screens and the dies for making same" (R. 148).

If Lippincott had known of the production or design of any screen with Palmer type arches, he certainly would have so stated. His testimony does not show any anticipation of the Palmer discovery. Even if he had conceived of a screen with this arch, that would not have constituted anticipation. There must have been built and successfully used a screen involving the elements of the Palmer invention to constitute anticipation. *Wilson v. Sherts* (C.C.P.A.) 81 F.(2d) 755, 760; *Westinghouse Machine Co. v. General Electric Co.* (C.C.A. 2) 207 Fed. 75.

While Lippincott's testimony does not establish anticipation, it does establish that Lippincott, an expert in the field, knew prior to 1932, that an arch could be produced in the wire but that he thought it was not desirable and designed his dies to avoid the arch. One could have no clearer evidence than this that more than mechanical skill was involved in Palmer's discovery. *Webster Loom Co. v. Higgins*, 105 U.S. 580,

26 L. Ed. 1177; *Miehle Printing Press & M. Co. v. Whitlock P. P. & M. Co.* (C.C.A. 2) 223 Fed. 647, 650.

Dobson likewise testified that an arch similar to Palmer's was known to manufacturers of woven wire screens prior to Aug. 2, 1932 (R. 152). When he was asked where he got such information, he stated that the manufacturer that knew of it was Manganese Steel Forge Co. (R. 154). Appellees took the deposition of Jones who had been president or vice-president of Manganese Steel Forge Co. since 1921 and he testified to no such arch, stating that their screens were Potter and Galloway screens (R. 156-158). It is, therefore, apparent that Dobson's recollection of the Manganese Steel Forge Co.'s screens was erroneous, if Dobson meant to imply that those screens had an arch like Palmer's. Moreover, it is apparent from the further testimony of Dobson on cross examination that in his testimony he failed completely to distinguish between the Potter and the Palmer screens, because after having testified that the screen his company made on March 28, 1931, was a Potter screen, one side of the screen being flat (which can be seen from the exhibit of this screen, Pl.'s Ex. 9), he completes his cross examination by citing this same screen as the basis of his knowledge of the Palmer arch, at the same time again stating that one side of the screen was flat (R. 149-150, 155-156).

The most that can be said of Dobson's testimony is likewise, then, that he knew prior to 1932 that the wire could be arched and yet failed to build any screen embodying it. Again we say that when the manufac-

turers in the industry, knowing that the wire could be formed with this arch, failed to perceive its advantage in an industrial wire screen, it cannot be said that only mechanical skill was necessary to discover that it was desirable when incorporated in a screen. The situation is the same as that in *Krementz v. Cottle Co.*, 148 U.S. 556, 13 Sup. Ct. 719, 37 L. Ed. 558, summarized in *Barry v. Harpoon Castor Mfg. Co.* (C.C.A. 2) 209 Fed. 207 (p. 209) as follows:

"In *Krementz v. Cottle Co.*, 148 U.S. 556, 13 Sup. Ct. 719, 37 L. Ed. 558, the court sustained a patent for a collar button for the reason that the skilled mechanic with his attention specially drawn to the subject, had failed to see what *Krementz* afterwards saw, that a button might be made of one continuous sheet of metal, of an improved shape, of increased strength, requiring less material and entirely dispensing with solder."

Appellees also introduced pictures of a window screen or grille on one of the windows of the Olympic Hotel in Seattle (Def.'s Exhs. A-7 and A-8) which was never used as an industrial screen for classifying substances (R. 175). Moreover, it was the old double crimp, the same on both sides (R. 226). Appellees also offered Defendant's Exhibit A-36, a catalogue of W. S. Tyler Company, for the purpose only of construing the claims of appellant's patent, since Tyler's screens were not referred to in the answer (R. 249-252). However, this catalogue shows no screen such as Palmer's. The screens there shown are all varieties of the old double-crimp, the same on one side as the other (R. 264).

It is well settled that the grant of a patent affords *prima facie* presumption of its validity. *Mumm v. Decker and Sons*, 301 U.S. 168, 171, 81 L. Ed. 983; *Seymour v. Osborne*, 11 Wall. (78 U.S.) 516, 538, 20 L. Ed. 33; *Coffin v. Ogden*, 18 Wall. (85 U.S.) 120, 21 L. Ed. 821. If it ever is to be applied, this principle has application here. This is particularly true where the only actual prior art introduced, as in the present case, consists of previous patents, all of which were cited by the Patent Office during the prosecution of the patent application and the patent was granted to Palmer in view of these citations. *J. A. Mohr & Son v. Alliance Securities Co.* (C.C.A. 9) 14 F.(2d) 799, 800; *Bianchi v. Barili* (C.C.A. 9) 168 F.(2d) 793, 796. Cf. cases cited in 35 U.S.C.A. 31, note 671.

Confusion of Terminology

We believe that the essentials of this case were obscured in the District Court by terminology used by appellees. Throughout the case they indiscriminately used the term "flat-top" to refer to a number of screens of varied form, such as Potter, Galloway and Palmer. When the task of the court is to analyze the similarities and differences between these screens, this task is not made easier or clearer by questions and argument in which the differences existing between the screens is ignored and glossed over by use of such a blanket name. Actually the term "flat-top" is a registered trade mark which designates only the screens manufactured by Abbey-Scherer Co. of the Potter type (R. 159). Yet appellee Kaye in his testimony constantly used the term "flat-top" as applying to the

Potter and to the Palmer screen so as to minimize the differences between them. The same use of the term was made in asking questions of Lippincott, Dobson, Jones, and Guess on written deposition, certainly with some confusion as shown by Dobson's replies on cross-examination. More important still, this confusion reached the District Court and even its Findings speak in several places of "flat-top type, generally speaking" (Findings, Pars. VII, IX X, XIII, R. 34, 35, 36). Blanket phrases such as this do not lend themselves to careful determination of points of similarity and differences between patented articles having different characteristics.

Further confusion was introduced by appellee Kaye in his use of the word "crimp." "Crimp" is a general word that can describe any bend in a wire, and in each of the Potter and Palmer patents the word "crimp" is used to describe a particular formation peculiar to that patent. In the Potter patent the word "crimp" is used to describe a deep cup, dropping the full diameter of the wire. The Potter crimp is in the form of a cup with its inside having a bottom concave towards the smooth side of the screen and lips convex toward the smooth side of the screen, the lips leading to the straight portions between cups. This Potter crimp is concave upwardly toward the smooth side of the screen for a depth of half the diameter of the wire and it maintains contact with the intersecting wire up to its mid-point. Thus in the Potter patent the word "crimp" refers both to a portion which is concave and to a portion which is convex towards the smooth side of the screen, all of which constitutes

the cup and the form of this cup is determined by the fact that the concave bottom has the same radius as the wire itself and maintains contact with the intersecting wire up to the mid-point of that intersecting wire. In the Palmer patent the word "crimp" is used to describe only a portion that is concave upwardly toward the smooth side of the screen and is very short and shallow consisting merely of the intersection of two arches and maintaining contact with the intersecting wire only along its bottom, the radius of this concave crimp in the Palmer screen being two-thirds to three-fourths of the diameter of the wire.

In arguing that his screens had no arches similar to Palmer, even though appearance and tracing showed the formation to be the same, Kaye applied the word "crimp" not only to the concave upward portion of the wire but also the arched portion of the wire which is convex upwardly toward the smoother side of the screen (R. 216-218, 221, 232-233). Thus he was using the word "crimp" in a sense different than that in which it was used in the Palmer patent and he thereby attempted to persuade the court that his "crimps" extended a long way out across the arched part of the wire, leaving only a small portion of the wire in the center joining his two crimps, and this small center portion he claimed was flat (R. 220, 232-233). This confusion was coupled with Kaye's testimony concerning the percentage determinations he used in adjusting the parts of his die, in such a way as to make it appear that most, if not all, of the formation of wire between the top of one arch and the top of the next arch in Plaintiff's Exhibit 2 (the

screen made by appellees which appellants contend infringes) was simply a crimp like the Potter crimp (R. 217-220, 232-233), yet at the same time he admitted that his crimp was different from Potter's (R. 236, 244).

To avoid such confusion and to decide this case on its facts and its merits, this court will, we are confident, be certain that it is comparing like with like, and is not letting use of language blind it to the very fundamental difference between the Potter straight wire and cup formation and the Palmer intersecting arch formation.

Similar confusion resulted from continued reference in questions and argument to "natural" arches resulting from the coils the wires came in and "natural" arches resulting from crimping, even though appellee Kaye himself admitted that the arch or curvature caused by the coil is removed and the wire is straightened before being shaped (R. 176, Cf. Guess, R. 160); and all the testimony indicates that the process of bending the wire will or will not produce an arch in it, or any other shape for that matter, depending on how the dies are adjusted (R. 109, 146, 160, 176, 229).

We submit that when the confusion is eliminated and the screen shown by Palmer is compared with the prior art, both as to its form and as to the practical results flowing from that form, it is clear that the Palmer discovery was not anticipated and constitutes invention.

Desirability of Palmer Screen

While the depositions taken by appellees (all of whom as manufacturers in this field had a direct interest in upsetting Palmer's patent) contain some challenge in generalities to the desirability of the Palmer screen, nevertheless, we believe that there can be little doubt in this case as to the advantages and desirability of the Palmer screen. The Palmer screen is desirable and constitutes invention in view of the prior art because there is less stress in the shaping and weaving of the wire than in Potter, Galloway, and other prior art; the wires are locked in place and will not shift as in Potter; the arch form of the wire gives faster classification of gravel than in Potter; and, while the center of the Palmer arch may wear a little faster than in Potter, the arch form and the heavier ends of arches act like the heavy ends of a bridge truss to support the lighter worn center part, as is shown by Plaintiff's Exhibit 6.

The fact of this desirability of the Palmer formation is established by its commercial success (R. 79-80, 199). Based on examination of hundreds of these screens in actual use, Palmer and Essley testified to the fact that it holds its meshes to a very close tolerance (R. 68, 121). Appellee's expert Lippincott testified that Palmer's screen was an improvement in that the crimping is less severe on the wire (R. 144-145). In fact it appears from Defendant's Exhibit A-5 that Roebling is now making screens with the Palmer formation (R. 144). Further, the principal answer to any contention by appellees that the Palmer formation is not desirable is that appellees are making it

(See Pl.'s Ex. 2) and apparently desire to continue. Appellee Kaye testified at great length to the success he was having with these screens (R. 259-260). We may here aptly paraphrase the statement in *Barry v. Harpoon Castor Mfg. Co.* (C.C.A. 2) 209 Fed. 207, 208:

“This device (Potter and Galloway screens) was never commercially successful and if, as the defendant contends, it be equally serviceable as that of the patent in suit the question at once arises, why does not the defendant use it? The fact that the defendant persists in using the Al-ley device (Palmer screen), and is willing to take the very serious risk of being adjudged an infringer, is persuasive testimony of the advantage of the ‘Domes of Silence’ (Palmer screen) over the Thonet big headed nails (Potter and Galloway screens).” (Insertions supplied)

Appellees had the burden of proving lack of invention by clear evidence establishing invalidity beyond a reasonable doubt. *Clark v. George Lawrence Co.* (C.C. Ore. 1908) 160 Fed. 512, citing at p. 514 *Coffin v. Ogden*, 18 Wall (85 U.S. 120, 124, 21 L. Ed. 821. Cf. cases cited in 35 U.S.C.A. 31, note 411. Appellees, also, had the burden of proving anticipation beyond a reasonable doubt by clear and satisfactory evidence. *J. A. Mohr & Son v. Alliance Securities Co.* (C.C.A. 9) 14 F.(2d) 799, 800. *Washburn & Moen Mfg. Co. v. Beat 'Em All Barbed Wire Co.*, 143 U.S. 275, 36 L. Ed. 154, 12 S. Ct. 443; Cf. cases cited in 35 U.S.C.A. 31 note 677. Not only did they fail to maintain this burden but also the record affirmatively supports the conclusion that Palmer's discovery constitutes in-

vention. He was the first to make and disclose the "arch" form of wire in an industrial wire screen, the form itself producing beneficial results. Under the cases heretofore cited, we submit that the court erred in holding that there was lack of invention or anticipation by prior art under these circumstances.

III.

The Palmer Patent Sufficiently Describes and Particularly Points Out the Invention.

The District Court's finding of fact XIV (R. 36) states that from the claims of the Palmer patent it would be impossible for anyone, even though acquainted with the art, to duplicate with certainty the Palmer screen or avoid such duplication. This finding is based on the remarks of the court in the oral opinion at the close of evidence that there is no certain formula for the *making* of plaintiff's screen and that it is not possible for a stranger to know with certainty how to *produce* the Palmer crimps and arches (R. 307).

Evidently the view of the District Court was, as already stated in this brief, not that the patent failed adequately to describe and point out the form of screen invented by Palmer, but that there was a failure to show any explicit formula to use in shaping the wires to go into the screen so as to achieve the Palmer formation. If that is a correct analysis of the decision below, then the answer to it is that no such explicit formula for making the Palmer formation was possible, nor was it needed.

Both the description (R. 325, left col. lines 15-16) and the claims (Claim 2, 3 and 5, R. 325-326) of the

Palmer patent state that the formation shown is to be produced by cold pressing and weaving. It is uncontroverted here that cold pressing and weaving of wire or rods into screens was an old art, well known throughout the industry, and could be used to produce any desired shape (R. 88, 138, 146, 226). What is old in the art is presumptively known and need not be described. As the Supreme Court stated in *Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 437, 22 Sup. Ct. 698:

“He may assume that what was already known in the art of manufacturing steel was known to them, and, as observed by Mr. Justice Bradley in *Webster Loom Co. v. Higgins*, 105 U.S. 580, 586, ‘He may begin at the point where his invention begins and describe what he has made that is new, and what it replaces of the old. That which is common and well known is as if it were written out in the patent and delineated in the drawings’.”

The industry already knowing how to produce a screen of a particular form, once it was described, there was no need for the patent to give a detailed statement on the method of making it. The record amply demonstrates that persons skilled in the art knew well how to produce the Palmer formation once it had been disclosed. Appellees are making these screens (Pl.’s Ex. 2) and appellee Kaye testified at length as to how it was done. Not a single witness exhibited any doubt as to just exactly what the Palmer formation was and how it could be produced. Lippincott showed such complete familiarity with the Palmer formation both as to how it was made and as to what

it was, that he was able to state wherein he felt that the Palmer construction was and was not an improvement (R. 144-145) and his opinion of how it would wear as compared to a Potter screen (R. 145). In fact, both Lippincott and Dobson stated, not that they were unable to tell what the Palmer formation was or how to make it, but that they already knew how to make an arch such as shown by Palmer (R. 141, 152).

We submit, then, that the validity of the Palmer patent cannot be attacked on the ground that it failed to describe in detail the process of producing the form of screen shown. The District Court in demanding a mathematical formula for the making of the Palmer screen failed to appreciate the testimony of both sides that no such formula could be given because the method of achieving the particular curve in the wire which was desired varied with the size of the wire, the mesh of the screen and the characteristics of the wire itself. To get the particular arch formation disclosed by Palmer in any particular screen it was necessary to use almost a trial and error method in setting the die for a particular lot of wire. Palmer pointed out that the mechanic who sets up the machine has to set it according to his own judgment for each screen he makes. Once he finds his right crimp, he runs out a few wires and weaves them by hand to test them. When he finds he has the machine set correctly he locks his machine in position and runs out all the wires (R. 78).

Kaye confirms this same method (R. 242) as does his employee, Evans (R. 228). Due to the variation

in the wire this experimental method must be used to produce the shape desired (R. 188, 204, 218).

Tightness, or pressure, between warp and weft wires at their crossing points is achieved by springing the wires during weaving. Such springing means that the height of the arch of a wire after being woven into a screen is not the same as before it is woven. The form of the wire in the final screen is pre-determined. Part of the height of the arch will result from weaving and the amount of springing of the wires in weaving will depend on the characteristics of the wire and the mesh and wire size. Consequently, in pre-forming the wire to achieve the desired form in the final screen, it is necessary to vary the pre-formed shape of the arch and crimp in accordance with the wire characteristics and size of wire and mesh so as to allow for this springing (R. 144, 187, 242-243, 284, 287-288).

Although adjustments must be made for each particular lot of wire and for each different wire and mesh size, the mechanics can by those adjustments achieve in the finished screen whatever wire formation is desired by them, as heretofore stated. It is evident that this trial and error method of formation applies to all the screens in the art. We believe that the fact that no precise mathematical formula was given for the pre-weaving shape of the wire led the District Court into the error of believing that persons skilled in the art could not produce the Palmer screen, which is refuted on this record.

If the decision below were to be interpreted as holding that the Palmer patent does not sufficiently describe and particularly point out the invention, as

distinguished from the method of producing it which we have just discussed, then the decision likewise would be clearly in error.

The Palmer patent claims are set forth in Exhibit 1 (R. 325-326). The District Court in its oral decision and in the Findings of Fact has not considered any of the claims in detail. No need is seen for analyzing each claim in detail as a consideration of claims 2 and 3 would seem to be representative and sufficient.

Discussion of Claim 2

The introductory clause is "A screen of the character described." This clause refers to the descriptive matter in the specifications which set forth at several places the subject matter and the purposes for which the screen is to be used. The first paragraph of page 1 of the specifications is in point. The screen is described as having "a relatively smooth side and a relatively rough side." These are words of degree. One side is compared with the other. The precise manner in which this smoothness and roughness is obtained and the degree of such comparison results from the further limitations in the claim.

The next limitation is "said screen comprising two sets of crossed spring tension high carbon wires, one set being arranged at right angles to the other set." This clause states the kind of wire to be used, that the wires are in two sets which cross each other. The claim goes on to state how the wires are formed, by saying:

"each wire being formed with cold-pressed gradual longitudinal arches, said arches bowing on

the smooth side of the screen, the terminals of adjacent arches defining relatively shallow crimps on the opposite or relatively rough side of the screen, said crimps thereby being coincident with the intersections of adjacent arches.”

This limitation distinguishes the screen from any in the prior art by stating that the individual wires are formed by cold pressing. This is very desirable from the manufacturing point of view as the screen is much less expensive to manufacture than one which requires that the wires be formed while hot (R. 77). This limitation, also, states that each wire is formed in the same manner. That is, the cold pressing, the arches, and the crimps are the same for all wires of both sets. The convex side of the arches form the smooth side and the convex side of the crimps form the rough side of the screen. This is a limitation upon the manner in which the wires are woven together to form the finished product. The crimps are formed by the terminals of the arches. This states the form of the crimp. It is the intersection of two arches.

The claim goes on to state how the wires are put together to form a screen, by saying,

“said sets of wires being woven with the wires of each set alternately overlying and underlying the wires of the other set, and the midpoints of the arches in each set overlying the intersections of the arches in the other set.”

This states that each wire of one set goes over, then under, then over, then under, and so on, with respect to the wires of the other set. It also states that the crown, or midpoint, of each arch overlies a crimp.

It will be noted that the intersecting of adjacent arches is emphasized in this claim. The intersecting abutment of the ends of adjacent arches form the crimps in which the cross wires lie. Along any one wire in a screen, the crimps are spaced apart the distance of twice the mesh size of the screen. See Fig. 2, Palmer patent (R. 323). Therefore, the length of each arch is twice the mesh size. Taking either the top or bottom edge, or the center line of a wire, an arch will rise from its low point in a crimp to the crest of the arch a distance equal to the diameter of the wire. If the height of the arch is more than the diameter of a wire there will not be contact between the crossed wires. The height of the arch cannot be less than a wire diameter without removing metal from the wires at their points of crossing as the thickness of a screen is twice the diameter of a wire.

This sets the form of the screen and also the height and length of the arch for any given wire diameter and screen mesh. A complete and operative device has been set forth. There is definiteness as to the form and relationship of all the parts of the screen. There is coaction between all of the parts. The claim points out the invention with great particularity.

Discussion of Claim 3

The first phrase of this claim calls for "A woven screen formed exclusively of cold pressed high carbon wire that is formed by cold pressing of the wire. The second clause of the claim states that the warp and weft wires are the same gauge, have the same diameter. The claim goes on to state that:

“each warp wire and each weft wire being formed with longitudinal gradual arches bowed on one side of the screen only with adjacent arches defining intersections, shallow crimps on the opposite side of said screen, said shallow crimps being defined by said intersections * * *.”

As in Claim 2, this limitation states that the crimps are formed by the intersection of the arches, and that the convex side of the arches form the smooth side and the convex side of the crimps form the rough side of the screen. The claim then states that the wires are woven so that the arches rest in the concave side of the crimps. Thus the structure is complete.

It is not deemed necessary to consider the scope of claims 1, 4 and 5 for a determination of the issues here involved.

Description Is Complete

The description in the Palmer patent shows the same formation pointed out in the claims and sets forth the advantages of this screen over the prior art. Particular attention is called to the drawings, which are an integral part of the disclosure of an application and are to be used with the written part of the specifications and relied upon in obtaining comprehension of the invention of a patent. *Bickell v. Smith-Hamburg-Scott Welding Co.* (C.C.A. 2) 53 F.2d 356, 358, cert. den. 285 U.S. 541; *Wagenhorst v. Hydraulic Steel Co.* (C.C.A. 6) 27 F.2d 27, 31.

Note that in Figure 2 of the drawings of the Palmer patent the arch, reference numeral 8, is curved

throughout its length and that the radius of curvature is constant throughout the length of the arch. Note that along the wire the end of one arch abuts the end of the next arch. The juncture of the two adjacent arches forms a crimp in which a cross wire 7 rests. This is the disclosure of the drawings and the drawings give precise meaning to the wording of the specifications and claims as no amount of wording and phrasing could do.

While, as above discussed, no exact formula is possible for the method of manufacture of these screens, the form of the wire in the screen itself as shown in this patent is exact for any size of wire and mesh, as Palmer testified (R. 288). The Palmer disclosure calls for the warp and weft wires to be of the same diameter (gauge) and for the arches and crimps in both sets of wires to be the same (R. 325, first paragraph). Further, the patent states that the joints between the wires, the point where an arch lies in a crimp of a transverse wire, are tight. With this construction, the thickness of the screen from the top, or smooth face, to the bottom, or rough face, can only be twice the diameter of a wire, as the warp and weft wires are of the same diameter. This may readily be seen by reference to Figure 2 of the drawing in the Palmer patent. The diameter of the wire used, such as the wire 7, Figure 2, fixes the rise, or heighth of the arch in the wire 8. Figure 2 shows this by the arch 8 extending from its crown to each side until it contacts and passes under the transverse wires 7 at each side. The claims point out this formation by stating that the crimps are formed or defined by the terminals or intersections of

adjacent arches. The length of the arch is determined by the spacing of the transverse wires. The mesh of a screen is the distance from center to center of adjacent parallel wires. It is the opening plus one wire diameter. Thus, the length of an arch in the wire is twice the mesh. This gives, for a particular screen, the height and length of the arch, and from these two dimensions a simple mathematical calculation finds the radius of the arch.

With regard to the attempt by appellee Kaye to confuse the Palmer crimp with the Potter crimp, may we point out that the limitation of the Palmer crimp as constituting simply the intersection of two arches, clearly distinguishes it from the Potter crimp which his patent states to be of a depth sufficient to accommodate the full diameter of intersecting bars and formed by crimping the bars for their whole diameter out of line at the places of crossing of the straight portions of the intersecting bar (R. 238).

Adequacy of Disclosure Not Properly Before the Court

We submit, then, that the Palmer patent sufficiently describes and particularly points out the invention. While we have argued this point so that this Court may appreciate the strength of our position, we do not believe that the point was properly before the District Court.

The patent law (U.S.C. Tit. 35, sec. 33) makes it a condition precedent to a valid patent that an adequate disclosure be made. Rule 9c of the Federal Rules of Civil Procedure requires that a denial of performance or occurrence of conditions precedent shall be

pleaded specifically and with particularity. This is in accord with settled law in patent infringement suits that if defendant wishes to challenge the adequacy of the disclosure, he must raise that question in the answer. *Providence Rubber Co. v. Charles Goodyear*, 76 U.S. 566, 19 L. Ed. 788.

The amended answer in this case raised no such issue, and appellants were unaware that it was a contention in the case until the District Court's judgment. The District Court denied appellant's motion for new trial, raising this point, on the ground of failure to object to evidence. Yet appellant knows of no evidence which it could properly have objected to on this basis because it all was pertinent to the issues of infringement and prior art which were being tried. If evidence is competent and material on issues being tried, it will not be deemed to put parties on notice that another issue is being brought into the case. *Simms v. Andrews* (C.C.A. 10) 118 F.2d 803. Moreover, even if failure to object to such testimony were to be regarded as justifying a motion to make the pleadings conform to the proof, no such motion was made in this case.

Utility

In connection with the challenge to the disclosure, the District Court in its Findings of Fact, Section XV, (R. 37, line 23) found "that there is no utility in the claimed invention."

Screens built in accordance with the disclosure of the Palmer patent were constructed and used for the classification of gravel (R. 60). Large numbers of

these screens have been manufactured and sold (R. 81, 100).

Both appellant and appellee have sold large numbers of these screens. As used in the field of patent law, "Utility" does not question whether or not the device operated better or worse than the prior art devices. The only question raised by a plea of lack of utility is, does the device operate in the manner set forth in the patent. As the Supreme Court stated in *Seymour v. Osborne*, 78 U.S. 516, 548-549, 20 L. Ed. 33, 20 Sup. Ct. Rep. 40:

"Improvements for which a patent may be granted must be * * * useful, within the meaning of the rule of law, * * * the requirement * * * is satisfied if * * * the machine is capable of being beneficially used for the purpose for which it was designed, as the law does not require that it should be of such general utility as to supersede all other inventions in practice to accomplish the same object."

This court has held that commercial success proves utility. *Sherman-Clay & Co. v. Searchlight Horn Co.* (C.C.A. 9) 214 Fed. 86.

IV.

Appellees Have Infringed the Palmer Patent

Plaintiff's Exhibit 2 is an industrial wire screen manufactured and sold by appellee Pacific Wire Works Co. in September, 1949, and is a duplicate of one manufactured and sold by appellees Karl H. Kaye and Matilda Kaye in December, 1947 (R. 53-55). We ask the court to examine this screen in the light of the formation shown in the Palmer patent. The screen is

identical with the Palmer formation in every respect.

Plaintiff's Exhibit 2 is cold pressed from high carbon spring steel wire (R. 77, 84, 176, 236). It is comprised of two sets of crossed wires, each wire being formed with gradual, longitudinal arches bowing on the smooth side of the screen (R. 83, 122-123). These arches are of uniform curvature (R. 128). Each of the arches extends all the way across two meshes of the screen, with the "crimp" or portion which is concave upwardly toward the smooth side of the screen, consisting of the intersection of two adjacent arches.

For the purpose of comparison, appellants introduced Plaintiff's Exhibit 3 which is a screen built by Palmer in accordance with his patent and of the same wire and mesh size as Plaintiff's Exhibit 2. Examination of these two screens will demonstrate their similarity.

To show the distinction between the arch formation of the Palmer screen and the flat formation of the Potter screen, appellants introduced Plaintiff's Exhibit 21, a card on which the profile of the wire of Plaintiff's Exhibit 2 is traced in red pencil, the profile of the wire in Plaintiff's Exhibit 3 is traced in black pencil and the profile of the wire in Plaintiff's Exhibit 7, the Potter screen, is traced in green pencil (R. 127-128). Examination of Plaintiff's Exhibit 21 will likewise show that Plaintiff's Exhibit 2 is a Palmer formation and not a Potter formation.

We believe there can be no doubt that Plaintiff's Exhibit 2 is an infringement of the Palmer patent. Appellants are entitled to relief here on the basis of this infringement even though, as appellees contend,

appellees may make other screens which do not infringe appellant's patent.

Appellees' contention in this regard was that as the mesh grew longer the center of the arch flattened out. We point out that the practical effect of the arch as a locking device depends on the curvature on the bottom, or concave side, of the arch. As shown by Plaintiff's Exhibit 6, the longer mesh screens under appellant's patent do have a continuous arch and maintain that curve on the concave side even when practically worn out on the surface.

Appellees introduced mostly wires rather than screens and many of these wires were not fully formed (R. 93, 94, 269). Nevertheless, appellants in no way contend here that all screens produced by appellees necessarily infringe appellants' patent. Appellants contend that Plaintiff's Exhibit 2 certainly does infringe, and any other screens having the same form as shown in Palmer's patent likewise infringe. Determination of other screens that infringe should be the task of the Master in fixing damages.

To constitute infringement it is not necessary to demonstrate substantial identity between machines to a mathematical certainty, but "infringement" connotes correspondence as to the substantial dominant and essential elements. *Bianchi v. Barili* (C.C.A. 9) 168 F.2d 793. These elements in the Palmer patent are the arch which gives support to the transverse wire and the shallow crimp which consists merely of the intersection of two adjacent arches and thus avoids any sharp bending of the wire. We ask that the

Master be instructed that any screen containing these two elements is an infringement of the Palmer patent.

Appellants also ask that appellees be enjoined from manufacturing, using, or selling woven wire screens in which the wires are of high carbon spring steel formed by cold pressing so that each wire consists of a series of arches; the terminals of adjacent arches forming shallow crimps, and when the wires are woven into a screen, all the arches are convex with respect to one side of such screen and the center of each arch rests in a shallow crimp of a transverse wire.

CONCLUSION

We submit that the Palmer patent is valid and has been infringed by appellees, and that the decision below should be reversed with instructions to grant an injunction against appellees as prayed and to continue the case for further proceedings appropriate to the determination of damages.

Respectfully submitted,

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